

REMARKS/ARGUMENTS

This Amendment accompanies a Request For Continued Examination (RCE), and is responsive to the Advisory Action mailed July 24, 2006 and to the final Office Action mailed April 10, 2006, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire July 10, 2006. Claims 4-6 have been previously canceled without prejudice. Claim 1 has been amended. No new matter has been added to the application. No fee for additional claims is due by way of this Amendment. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Claims 1-3 are pending.

A Request For Continued Examination (RCE) is filed concurrently with this Amendment so that the Office Action mailed April 10, 2006 is effectively made non-final. Under 37 U.S.C. 1.114, the effect of the RCE, which makes the instant Office Action non-final, is to cause examination of the instant application to remain open. Accordingly, amendments submitted herein are to be entered as a matter of right, and each claim is entitled to continued examination, particularly with respect to the responses provided herein.

Rejections Under 35 U.S.C. § 103

Claims 1-2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou et al., hereinafter Chou, (W. Chou, M.A. Neifeld, 'Interleaving and error correction in volume holographic memory systems', Appl. Opt., vol. 37, no. 29, October 10, 1998, pp. 6951-6968) in view of Curtis et al., hereinafter Curtis, (U.S. Patent No. 6,163,391) and Bernal et al, hereinafter Bernal, (M.P. Bernal, G.W. Burr, H. Coufal, M. Quintanilla, 'Noise in high-areal-density holographic data storage systems', Opt. Soc. America, Washington D.C., USA, May 1998, pp.21-22).

The illustrative and non-limiting embodiments of Applicant's invention are directed to a holographic recording and reproducing apparatus for recording data as phase information of light in a holographic recording medium by projecting a signal beam and a reference beam onto the holographic recording medium. A pinhole is disposed at a confocal point of a Fourier transform lens and a reverse Fourier transform lens, such that the pinhole is

disposed either between the holographic recording medium and the Fourier transform lens or between the holographic recording medium and the reverse Fourier transform lens. The focal length of the Fourier transform lens remains unchanged and the pinhole is disposed at the confocal point of the Fourier transform lens and the reverse Fourier transform so as to serve as a spatial filter to the holographic recording and reproducing apparatus and remove a noise component when data are recorded or data are reproduced.

Claim 1 as amended recites, *inter alia*, “a pinhole disposed at a confocal point of the Fourier transform lens and the reverse Fourier transform lens, the holographic recording medium being disposed between the Fourier transform lens and the reverse Fourier transform lens, and the focal length of the Fourier transform lens and focal length of the reverse Fourier transform lens being different from each other and remain unchanged, and the pinhole being disposed between the holographic recording medium and the Fourier transform lens or between the holographic recording medium and the reverse Fourier transform lens.” (Emphasis added.)

Curtis teaches a holographic recording apparatus including a transforming lens 390 or a power element 405 that adds convergence or divergence, respectively, to an object beam before the object beam enters the Fourier transform lens. The transforming lens 390 or the power element 405 is disposed in the path of the object beam at a position prior to the Fourier transform lens 390, thereby repositioning the dc focus 380 (focal point) either behind a Fourier transform plane 385 (if the diverging power element 405 is used) or in front of the Fourier transform plane 385 (if the converging transform lens 390 is used) (See figures 10-11 and column 11, lines 1-20 of Curtis).

Page 2 of the Advisory Action contends that “Curtis et al. is being relied upon to evidence the repositioning of the focal point of the Fourier transform lens away from the recording medium, such that the focal point now must be located either between the Fourier transform lens and recording medium, or between the recording medium and inverse Fourier transform lens.” (Emphasis added.) Amended independent claim 1 teaches that the focal lengths of the Fourier transform lens and of the reverse Fourier transform lens remain unchanged.

Curtis does not teach, disclose or suggest keeping the focal length of the Fourier transform lens and of the reverse Fourier transform lens unchanged and instead teaches

repositioning of the focal length by having additional optical lenses included within the holographic recording apparatus. Thus, Curtis does not teach, disclose or suggest having the focal point located either between the holographic recording medium and the Fourier transform lens, or between the holographic recording medium and the reverse Fourier transform lens, while keeping the focal point unchanged, as recited in claim 1. Curtis further lacks a teaching of an aperture or a pinhole.

Bernal teaches that both the holographic recording material and aperture are disposed at the Fourier plane. As illustrated in Fig. 1 of Bernal, the Fourier plane is located at the focal point of lenses L1 and L2. Thus, Bernal does not teach or suggest having the focal point located either between the holographic recording medium and the Fourier transform lens, or between the holographic recording medium and the reverse Fourier transform lens. As noted on page 4 of the final Office Action dated April 10, 2006, Chou fails to disclose “a pinhole disposed at a confocal point of the Fourier transform lens and the reverse Fourier transform lens.” Instead, Chou teaches a storage medium (recording medium) recording an interference pattern between object and reference beams at the confocal point of lens 1 and lens 2 (Figure 1). Thus, Chou does not teach, disclose or suggest having the focal point located either between the holographic recording medium and the Fourier transform lens, or between the holographic recording medium and the reverse Fourier transform lens. Consequently, Bernal and Chou fail to cure the deficiencies of Curtis.

It is respectfully noted that the Applicant has clearly noted a teaching missing from Curtis, and in discussing Bernal and Chou made clear that neither Bernal nor Chou supply the missing teaching. Thus, Applicant is clearly treating the references in combination.

Curtis, Bernal and Chou do not teach or suggest all the limitations of independent claim 1. Thus, claim 1 is allowable as is claim 2, which depends therefrom

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Curtis and Bernal.

As discussed above, Curtis teaches repositioning the dc focus 380 (focal point) either behind the Fourier transform lens 390 by way of the power element 405 or in front of the Fourier transform lens 390 by way of the transforming lens 390. Thus, Curtis does not teach or

suggest having the focal point located either between the holographic recording medium and the Fourier transform lens, or between the holographic recording medium and the reverse Fourier transform lens, while keeping the focal point unchanged.

As further discussed above, Bernal and Chou fail to cure the deficiencies of Curtis. Thus, Curtis, Bernal and Chou do not teach or suggest all the limitations of claim 1. Consequently, claim 1 is allowable as is claim 3, which depends therefrom.

Claim 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Waldman et al. (U.S. Patent Application Publication US 2005/0134948 A1) in view of Bernal et al.

The Examiner has noted in the Advisory Action that such rejections have been overcome in response to Applicant's reply to the Office Action of April 10, 2006, for which the Applicant thanks the Examiner.

Conclusion

Overall, the cited references do not singly, or in any motivated combination, teach or suggest the claimed features of the embodiments recited in independent claim 1, and thus such claim is allowable. Because the remaining claims depend from the allowable independent claims, and also because they include additional limitations, such claims are likewise allowable. If the undersigned attorney has overlooked a relevant teaching in any of the references, the Examiner is requested to point out specifically where such teaching may be found.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 622-4900.

Respectfully submitted,
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